



**State of Hawaii
Department of Health
Clean Water Branch**

**Do NOT submit
this document.**

Guidelines for CWB-ZOM Form

Guidelines for Application for a Zone of Mixing (ZOM) under Hawaii Administrative Rules (HAR), Section 11-54-09 (to be submitted concurrently with the National Pollutant Discharge Elimination System (NPDES) Permit Application, when applicable)

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1. Owner Information

The owner is the organization or person who owns the activity or facility, not necessarily the owner of the land. The acknowledgment of receipt of the Zone of Mixing application will be sent to the street or mailing address provided for this item.

2. Owner Type

If "Other" is checked, indicate the category type or types of the owner.

3. Operator Information

The operator is the organization or person who manages the daily activities at the facility.

4. Facility Information

For facilities which are part of a larger corporation, indicate the corporation name and the name by which the facility is known to the employees (i.e., ABC Inc. - DEF Facility).

5. Receiving State Water(s) Information

- a. Receiving State Water(s) Name - The discharge point is generally the discharge's point of first contact with receiving State waters. If possible, use the Global Positioning System (GPS) or Geographical Information System (GIS) to obtain the coordinates. Otherwise, use a U.S. Geographical Survey (USGS) or any other appropriate map to interpolate the coordinates.
- b. State water classification is available on the Water Quality Standards Map dated October 1987 or in HAR, Chapter 11-54.
 - i. Inland Waters - HAR, Section 11-54-05
 - ii. Marine Waters - HAR, Section 11-54-06
 - iii. Marine Bottom - HAR, Section 11-54-07
- c. Attach the information requested in Item 5.a. and 5.b. on a separate sheet if there are additional discharge points. Properly label the discharge points with numbers which correspond to the submitted proposed Zone of Mixing map and flow chart. If there are multiple

inlets to a single discharge point and multiple discharge points, designate which inlet leads to each discharge point.

d. Provide the depth of the outfall in feet.

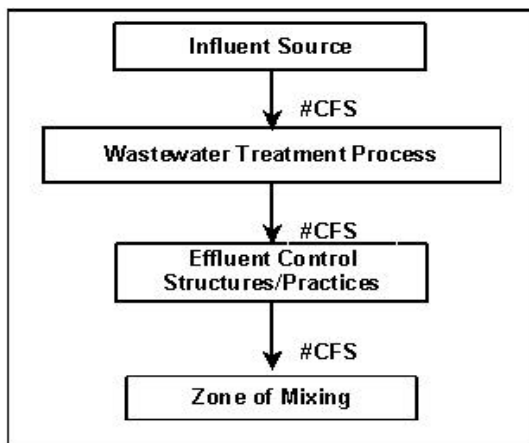
6. Period of Discharge

Indicate how often the discharge into receiving State waters will occur, as applicable.

7. NPDES Permit Application

The CWB-ZOM Form shall be submitted concurrently with the NPDES Permit application, when applicable. If this CWB-ZOM Form is an attachment to an application for renewal of an NPDES Permit, provide the permit number previously assigned to this facility in the space provided.

8. Pollution Control Measures Presently Applied to Wastewater Prior to Discharge



Flow Chart - An example of a line drawing indicating the existing flow sequence and the approximate amount of flow for each waste stream. Indicate the best degree of treatment or control used prior to discharge. The quantity of discharge may be estimated if no data is available.

9. Present Wastewater Discharge

Identify all applicable type(s) of discharge.

10. Source of Discharge

As an example, the source of the discharge may include wash waters, boiler blowdown, and cultivated fields.

11. Quantity of Discharge

Provide the quantity of the present flow and design flow in gallons per day.

12. Physical Quality of Discharge

Place an "X" in either the "Believe Present" column or the "Believe Absent" column based on the test results or your best estimate.

13. Specific Water Quality Criteria Parameters

- a. It is the objective of this part of the application to make known the quality of the present discharge so that an accurate evaluation can be made by the Department of Health to determine how the present effluent may affect the quality of the receiving body of water as establishing by HAR, Chapter 11-54.

- b. All of the parameters must be tested and reported.
- c. Test results shall be obtained from a representative sample of the discharge during the most intense month in the 12-month period preceding this application. "Representative sample" as defined in HAR, Chapter 11-55, Appendix A, Section 14(a):

"As used in this section, a representative sample means that the content of the sample shall:

- (1) Be identical to the content of the substance sampled at the time of the sampling;
- (2) Accurately represent the monitored item (for example, sampling to monitor final effluent quality shall accurately represent that quality, even though the sampling is done upstream of the discharge point); and
- (3) Accurately represent the monitored item for the monitored time period (for example, sampling to represent monthly average effluent flows shall be taken at times and on days that cover significant variations). Representative sampling may include weekends and storm events and may mean taking more samples of the discharge.

The burden of proving that sampling or monitoring is representative is on the permittee."

- d. The test results shall be reported to the nearest decimal place or whole number as shown in the parentheses following each parameter. For example, "Temperature (0.1 °C)" - Temperature shall be reported to the nearest tenth of a centigrade and "Ammonia Nitrogen (10 µg/l)" - Ammonia Nitrogen shall be reported to the nearest ten micrograms per liter.
- e. Indicate the test method used for the parameter. The test methods that may be used are promulgated in 40 CFR Part 136 and, when applicable, listed in the references of chemical methodology for seawater analyses (see HAR, Chapter 11-54, Section 10(b)). If a test method has not been promulgated for a particular parameter, you may apply for approval of an alternate test procedure by following 40 CFR Section 136.4.
- f. The detection limit of the test methods used shall reflect the applicable numerical limitations as specified in HAR, Chapter 11-54 and shall be indicated.
 - i. The test method indicated shall have the detection limit below and closest to the numerical limit specified in HAR, Chapter 11-54. For situations where the numerical limitation is below the detection limit of the test methods, use the test method which has the detection limit closest to the numerical limitation.
 - ii. If the test result is not detectable, indicate that the test result is "N.D." or "not detected."

14. Toxic Parameters

- a. All of the parameters must be considered, tested, and reported, if applicable.
- b. The parameters are categorized into Metals and Others and are listed alphabetically. A Glossary of Chemicals is listed in Note 23.
- c. Fill in each space to indicate that each parameter has been considered. If a parameter does not apply to the activity, enter "N/A" for "not applicable" in the "Test Result" column to show that the parameter was considered.

- d. Parameters not listed, but applicable to the activity, must be tested and reported in the blank space provided. If more space is needed, provide the test results as an attachment.
 - e. The test results shall be reported in micrograms per liter.
 - f. Indicate the test method used for the parameter. The test methods that may be used are promulgated in 40 CFR Part 136 and, when applicable, listed in the references of chemical methodology for seawater analyses (see HAR, Chapter 11-54, Section 10(b)). If a test method has not been promulgated for a particular parameter, you may apply for approval of an alternate test procedure by following 40 CFR Section 136.4.
 - g. The detection limit of the test methods used shall reflect the applicable numerical limitations as specified in HAR, Chapter 11-54 and shall be indicated.
 - i. The test method indicated shall have the detection limit below and closest to the numerical limit specified in HAR, Chapter 11-54. For situations where the numerical limitation is below the detection limit of the test methods, use the test method which has the detection limit closest to the numerical limitation.
 - ii. If the test result is not detectable, indicate that the test result is "N.D." or "not detected."
15. Description of the Existing Environment and Potential Environmental on the Receiving Waters
- The decision of the Director of Health as to the boundaries of a Zone of Mixing must be based on sound data. Therefore, information on present conditions and use of receiving waters must be known to the Director of Health. The data supplied should be complete enough to allow the Director of Health to determine the assimilation capacity of the receiving water.
- a. Provide a survey report, if available, and photographs of the existing physical environment. Provide a discussion on the environmental effects on the receiving water from the discharge and other sources (i.e., land, sediment, ground water, air, etc.), as applicable. Also, provide data pertinent to the existing conditions of the receiving water (i.e., depths, currents, location, etc.).
 - b. Provide monitoring data for the existing chemical environment. Provide a discussion on the environmental effects on the receiving water column from the discharge and other sources (i.e., land, sediment, ground water, air, etc.), as applicable.
 - c. List all species, specifically native species, and habitats for existing biological environment. Provide a discussion on the environmental effects on plants, animals, and habitats.
 - d. Provide the existing use and effects of the discharge on existing human activities such as recreational activities, propagation of fish, shellfish, or other aquatic animals, plants, etc.
16. Proposed Zone of Mixing Boundaries Map
- a. Provide the location map on 8-1/2 by 11 inches sized paper or folded to 8-1/2 by 11 inches. Show at least one mile beyond the proposed Zone of Mixing boundaries on the map.
 - b. Indicate the intake and discharge point(s) associated with the facility on a plat map or other appropriate map, including all of the required information. The discharge point(s) shall indicate where the discharge enters the State receiving waters.
 - c. Submit calculation/modeling used to support the Zone of Mixing delineation.

17. Best Degree of Treatment or Control

Zones of mixing may not be issued unless the discharge has received the best degree of treatment or control. If additional pollution control facilities are planned, indicate so in this section.

- a. Implementation Plan - Choose one (1) or more.
- b. Implementation Deadlines - Indicate the proposed deadlines (month/year) when the Department will receive pertinent data and information to the various stages or steps for implementation of new or additional pollution control facilities.

18. Hawaii Administrative Rules, Section 11-54-09(c)(5) Objectives

"No zone of mixing shall be established by the director unless the application and the supporting information clearly show that:

- (A) The continuation of the function or operation involved in the discharge by the granting of the zone of mixing is in the public interest;
- (B) The discharge occurring or proposed to occur does not substantially endanger human health or safety;
- (C) Compliance with the existing water quality standards from which a zone of mixing is sought would produce serious hardships without equal or greater benefits to the public; and
- (D) The discharge occurring or proposed to occur does not violate the basic standards applicable to all waters, will not unreasonably interfere with any actual or probable use of the water areas for which it is classified, and has received (or in the case of a proposed discharge will receive) the best degree of treatment or control;"

A detailed response/explanation to the four (4) basic objectives are required in order to satisfy this requirement. Please see HAR, Section 11-55-39, for detailed information required to properly address the "public interest" issues.

19. Additional Information

Any other site-specific information pertaining to the proposed Zone of Mixing may also be provided in this section. Additional sheets may be attached with reference to Item 19.

20. Certification

- a. Do not alter the statements in or format of this item. Alteration of this item will result in the invalidation of this CWB-ZOM Form submittal.
- b. The person certifying this CWB-ZOM Form must meet one of the descriptions as indicated in this item.

21. Inquiries and Submittals

- a. CWB-ZOM Form questions should be directed to the Engineering Section of the CWB at (808) 586-4309 or fax number (808) 586-4352 and submissions should be directed to the street or mailing address listed below:

i. Street Address
Clean Water Branch
State Department of Health
919 Ala Moana Boulevard, Room 301
Honolulu, Hawaii 96814-4920

ii. Mailing Address
Clean Water Branch
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

- b. For facilities/projects on Oahu, submit two (2) copies of the CWB-ZOM Form and supporting documents with the owner's original signature. One copy of the CWB-ZOM Form shall include the owner's original signature.
- c. For facilities/projects located on islands other than Oahu, submit three (3) copies of the CWB-ZOM Form and supporting documents. One copy of the CWB-ZOM Form shall include the owner's original signature.

22. Availability of CWB-ZOM Form

The CWB-ZOM Form is a WordPerfect and MSWord document. Hard copies and electronic files are available. The CWB-ZOM Form and Guidelines may be downloaded from the CWB website at www.hawaii.gov/doh/eh/cwb/forms.html in Adobe Acrobat, MSWord, or WordPerfect formats. In the future, the Guidelines and Forms may be provided in html format.

23. Glossary of Chemicals

This glossary is for general use and is not intended to be a complete or definitive reference. The parameters are categorized into Metals, Organonitrogen Compounds, Pesticides, Phenols, Phthalates, Polynuclear Aromatic Hydrocarbons, Volatile Organics, and Others and are listed alphabetically.

The information was obtained primarily from Environmental Protection Agency (EPA) Ambient Water Quality Criteria documents which are referenced in EPA's Quality Criteria for Water (EPA 440/5-86-001), updated May 1, 1987. Additional information was obtained from the EPA pamphlet "Suspended, Cancelled and Restricted Pesticides," January 1985; The Condensed Chemical Dictionary, 10th Ed. (Van Nostrand Reinhold Co., Inc., New York, 1981); and The Farm Chemicals Handbook (Meister Publishing Company, Willoughby, OH, 1988).

Information on organotins was obtained from the International Organotin Symposium held at Halifax, Nova Scotia in September 1987 and published in Volume 4 of the Oceans '87 Proceedings, by the Marine Technology Society, Washington D.C., and IEEE Ocean Engineering Society, Piscataway, NJ.

a. Metals

Antimony - A metal used as a hardening alloy for lead, particularly in lead-acid batteries. Also used as a semiconductor and in pyrotechnics.

Arsenic - A metal used as an alloy with lead and copper in shot, batteries, and cables. Arsenic trioxide is used as a pigment and as an insecticide, rodenticide, herbicide, sheep and cattle dip, hide preservative, and wood preservative. It was used as a pesticide in the production of canec panels in Hilo. Use in houses is restricted to concentrations below 1.5 percent. Carcinogen.

Barium - A malleable, ductile metal. Its compounds are used in oil and gas production; medical procedures; the manufacture of paints, bricks, tiles, glass, rubber, ceramics, pesticides, and oil and fuel additives.

Beryllium - A metal for various high-technology uses including nuclear reactor moderator and structural material. Carcinogen.

Cadmium - A metal used in electroplating and coating, alloys, nickel-cadmium batteries, pigments, and in a variety of other industrial areas.

Chromium - A metal used in plating, alloys and in pigments. Hexavalent forms are most toxic and are used in cooling tower additives.

Copper - A metal used in wiring, plumbing, electroplating, alloys, insecticides, and in anti-fouling paints.

Lead - A metal used in batteries, gasoline additives, solder, and ammunition.

Mercury - A metal used in dentistry, electronics, instruments, lamps, metallurgy and formerly in anti-fouling paints.

Nickel - A metal used in alloys, electroplating, and batteries.

Selenium - A metalloid element used in electronics, rubber production, dandruff shampoo, and a trace element in animal feed.

Silver - A metal with various electronic, chemical, plating, photographic, and dental uses.

Thallium - A metal. Pesticide registration of thallium sulfate cancelled.

Tributyltin - Tributyltin is of environmental concern primarily because of its use in marine anti-fouling paints. This use has recently been restricted by Congress. Organotins have also been used in agriculture and residential areas to control fungi and insects including moths, houseflies, cockroaches, and mosquito larvae. The largest use is in stabilizing polyvinyl chloride polymers used in construction materials and food packaging.

Zinc - A metal used in alloys, electroplating, galvanizing, batteries, and cathodic protection.

b. Organonitrogen Compounds

Benzidine - Aromatic amine used in dye production. Carcinogen.

Dinitro-o-cresol - Pesticide, fungicide, insecticide and miticide. Also used as a blossom-thinning agent on fruit trees.

Dinitrotoluene - Commercial and military explosive.

Diphenylhydrazine - Used as a reagent for the sugars arabinose and lactose and for the production of phenylbutanone and benzidine.

Nitrobenzene - Used in the production of aniline dyes, rubber, medicinals, metal polish, shoe black, perfume, and as a combustion propellant and chemical reaction, and crystallizing solvent.

Nitrosamines - Only small quantities are synthesized for research and rubber and pesticide production. Primary environmental exposure is probably due to the nitrosation of amine

and amide precursors in reactions in air, soil, water, food, and animal systems.
Carcinogen.

c. Pesticides

Aldrin - Insecticide used in ground injection for termite control and non-food plant dip.
Registration for other uses cancelled. Metabolizes to dieldrin. Carcinogen.

Chlordane - Insecticide used for termite control and non-food plant dip. Registration for other
uses cancelled. Carcinogen.

Chlorpyrifos - Organophosphorus insecticide (a.k.a. Dursban, Lorsban). Used locally for
termite control.

DDT - Persistent lipid-soluble chlorinated pesticide. Formerly most widely used. All pesticide
uses cancelled except by government agencies and physicians. Metabolizes to DDE and
TDE. Carcinogen.

Demeton - Systemic insecticide and acaricide applied as a foliage spray and soil drench.

Dieldrin - Persistent insecticide used in ground injection for termite control and as non-food
plant dip. Registration for other uses cancelled. Carcinogen.

Endosulfan - Insecticide and acaricide (a.k.a. Thiodan). Used on pineapples in Hawaii.

Endrin - Pesticide, rodenticide, and avicide. Used on sugarcane to control the sugarcane
beetle. Registration cancelled for control of the sugarcane borer. Teratogen.

Guthion - Organophosphorus pesticide used for many pests on various fruits, melons, nuts,
vegetables, field crops, ornamental, and shade trees.

Heptachlor - Insecticide registered for termite control and non-food plant dip. Registration for
other uses cancelled. Carcinogen.

Lindane - Broad spectrum insecticide used in livestock sprays, forestry, christmas trees,
structural treatments, hardwood logs and lumber, dog sprays, dusts and dips, flea collars,
moth sprays, seed treatments, shelf paper, and household sprays. Carcinogen.

Malathion - Organophosphorus insecticide used for many insects including: aphids, spider
mites, scale insects, house flies, mosquitos, and for insects attacking fruits, vegetables,
ornamental and stored products. Used in public health programs to control mosquitos.

Methoxychlor - Organochlorine pesticide.

Mirex - Organophosphorus insecticide. Registration cancelled 12/01/77. Mirex was used to
control fire ants on pineapples in Hawaii.

Parathion - Organophosphorus pesticide used on fruit, nut, vegetable, and field crops.

TDE - Metabolite of DDT. Carcinogen.

Toxaphene - 175 compounds of chlorinated camphene. Formerly the most heavily used
pesticide. Registration cancelled in 1982 with exceptions for cattle, pineapples, and
bananas. No U.S. production. Persistent in the environment. Carcinogen.

d. Phenols

Chlorinated Phenols - (Includes chlorinated cresols). Synthesis of dyes, pigments, resins, pesticides, herbicides and used directly as flea repellents, fungicides, wood preservatives, mold inhibitors, antiseptics, disinfectants, and anti-gumming agents in gasoline. Chlorinated phenol pesticide products include 2,4-D, 2,4-DCP, 2,4,5-T, 2,3,4,6-TCP, and PCP. Some forms carcinogenic.

2-Chlorophenol - Intermediate in chemical production of fungicides, slimicides, bactericides, antiseptics, disinfectants, and wood and glue preservatives. Can be produced in the chlorination of drinking water and sewage. May be biodegraded.

2,4-Dichlorophenol - Used in the production of herbicides (2,4-D) and in mothproofing, antiseptics, and seed disinfectants. Metabolic and photodegradation product of the above.

Nitrophenols - 2,4,6 trinitrophenol (picric acid) has been used as an explosive, dye intermediate, reagent, germicide, fungicide, staining agent and tissue fixative, and in photochemicals, pharmaceuticals, and metal etching. Mono and dinitrophenols would occur in the environment primarily from discharges from manufacturing plants or possibly from the degradation of pesticides. They are used in the production of dyes, photochemicals, pesticides, wood preservatives, explosives, and leather treatments. See also 2,4 dinitro-o-cresol.

Pentachlorophenol - Very common pesticide, fungicide, and bactericide (a.k.a. PCP).

Phenol - Used in production of epoxy and phenolic resins, pharmaceuticals, germicides, fungicides, slimicides, herbicides, dyes and acids, and as a disinfectant and antiseptic.

e. Phthalates

Phthalate Esters - Plasticizers used especially in Polyvinyl chloride (PVC) production. Easily extractable and up to 60 percent of the total weight of plastic. Also used in the production of pesticide carriers, cosmetics, fragrances, munitions, industrial oils, and insect repellents.

f. Polynuclear Aromatic Hydrocarbons

Acenaphthene - Coal tar product used in the manufacturing of dyes and plastics and as an insecticide and fungicide. Also detected in cigarette smoke and gasoline exhaust.

Fluoranthene - A polynuclear aromatic hydrocarbon. Primarily a pyrolysis product formed in frying, smoking, incineration, etc. Natural as well as man-made sources. Carcinogen.

Naphthalene - Primary parameter of coal tar. Used in dye production, formulation of solvents, and chemical synthesis. Also used in lubricants and motor fuels, and as a moth repellant, insecticide, anthelmintic, vermicide, and intestinal antiseptic.

Polynuclear Aromatic Hydrocarbons - Diverse class of compounds formed by incomplete combustion of organics with insufficient oxygen. Examples include benzo[a]pyrene and benz[a]anthracene. Carcinogen.

g. Volatile Organics

Acrolein - Biocide for weed, algae, mollusk and slime control, and to protect liquid fuels from microorganisms. Also used in leather tanning, tissue fixation, paper, textiles, crease-proofing cotton, and as a chemical intermediate, plasticizer, copolymer in photography, builder in laundry and dishwashing detergents, and coating for aluminum and steel.

Acrylonitrile - Copolymer used in the production of fibers and plastics (e.g., ABS Acrylonitrile-Butadiene-Styrene plastic), and latexes and chemicals. Banned as a resin for soft drink containers and as a fumigant. Similar toxic effects as cyanide. Carcinogen.

Benzene - Coal tar and petroleum product used in pharmaceutical and chemical synthesis, including the production of styrene, detergents, pesticides, thinners, and inks. Also used as a cleaner and degreaser, solvent, and gasoline anti-knock additive. Carcinogen.

BHC - Benzene hexachloride. See hexachlorocyclohexane and lindane. Carcinogen.

Carbon Tetrachloride - Solvent and grain fumigant also used in fire extinguishers. Carcinogen.

Chlorinated Benzenes - Solvents for fats, oils and greases, also used as fumigants, degreasers, lubricants, dielectrics, dye carriers, wood preservatives; in chemical, pesticide, and herbicide production; heat transfer; military pyrotechnics; and termite control. Carcinogen.

Chlorinated Ethanes - Used in the production of tetraethyl lead and vinyl chloride and as solvents and chemical intermediates. Some forms carcinogenic.

Chloroalkyl ethers - Used in organic synthesis, textiles, ion exchange resins, pesticides, and reaction solvents.

Chloroform - Chemical solvent. Formed in the chlorination of sewage and water supplies. Carcinogen.

Dichlorobenzenes - Used in air deodorants, insecticides, chemical production, dyes, herbicides, and degreasers.

Dichlorobenzidine - Used in the production of dyes and pigments and a curing agent for polyurethanes. Carcinogen.

Dichloroethylenes - Intermediate in chemical production, and polyvinylidene chloride copolymers in food packaging materials (e.g., plastic wrap) and tank coatings. Degradation products of larger chlorinated hydrocarbons. Carcinogen.

Dichloropropane - Soil fumigant for nematodes, oil and fat solvent, and degreaser.

Dichloropropene - Soil fumigant for nematodes, used in Hawaii on pineapples. Also oil and fat solvent and degreaser.

Ethylbenzene - Up to 20 percent of gasoline. Widespread commercial use including production of styrene, diluents in paints, and used as insecticides.

Hexachlorobutadiene - Organic solvent used in chlorine production recovery, in rubber and lubricant production, and as a gyroscope fluid. Carcinogen.

Hexachlorocyclohexane - Broad spectrum insecticide (a.k.a. BHC). Only the gamma isomer, lindane, is currently registered and produced. Carcinogen.

Hexachlorocyclopentadiene - Base of several chlorinated pesticides including: aldrin, dieldrin, chlordane, heptachlor, endrin, isodrin, kepone, mirex, endosulfan, and pentac. Also used in the production of flame retardants.

Isophorone - Solvent for fats, oils, gums, natural and synthetic resins, cellulose derivatives, lacquers, pesticides and herbicides. Used in chemical and plant growth retardant production.

Tetrachloroethylene - Solvent in textile and dry cleaning, metal cleaning, and chemical production (a.k.a. perchloroethylene or PCE). Carcinogen.

Toluene - Aviation fuel and high-octane blending stock, chemical intermediate, thinner, solvent for paints, gums, resins, oils, rubber, and vinyl, and used in plastic cement, chemicals, explosives, and detergents.

Trichlorinated ethanes - Metal degreaser, chemical intermediate, adhesive and resin solvent, pesticide, dry cleaning solvent, formerly used as a fumigant 1,1,2 isomer carcinogenic.

Trichloroethylene - Degreasing solvent in metal industries. Formerly dry cleaning solvent and extractive solvent in foods (a.k.a. TCE). Carcinogen.

Vinyl chloride - Polymerized in the production of PVC, the most widely used material in the manufacture of plastics. All pesticide uses cancelled (whether an active or inert ingredient) for uses in the home, food handling establishments, hospitals, and enclosed areas. Degradation product of larger chlorinated hydrocarbons. Carcinogen.

h. Others

Chlorine - Chlorine is commonly used to disinfect wastewater and water supplies and to control fouling organisms in cooling water systems.

Cyanide - Used and formed in many industrial processes including steel, petroleum, plastics, synthetic fibers, metal plating, mining, and chemical industries.

Dioxin - Trace contaminant of chlorinated phenols, chlorinated phenoxy acids (especially the herbicide 2,4,5-T and Silvex), and hexachlorophene. Carcinogen.

Polychlorinated biphenyls (PCBs) - Used as a transformer and capacitor fluid. Also used as a heat transfer, hydraulic, compressor, and vacuum pump fluid, plasticizer, and in lubricants and wax extenders. No longer manufactured in the United States. All pesticide uses eliminated. Carcinogen.